



DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION

**MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION**

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www.miamidade.gov/pera

NOTICE OF ACCEPTANCE (NOA)

Boral Roofing LLC.
7575 Irvine Center Drive, Suite 100
Irvine, CA. 92618

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County PERA - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. PERA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: España Concrete Roof Tile

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This revises NOA# 07-1023.06 and consists of pages 1 through 6.
The submitted documentation was reviewed by Alex Tigera.



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ROOFING ASSEMBLY APPROVAL

Category: Roofing
Sub-Category: Roofing Tiles
Material: Concrete

1. SCOPE

This approves a system using España Concrete Roof Tile, as manufactured Boral Roofing LLC in Lake Wales, FL., and described this Notice of Acceptance. For locations where the pressure requirements, as determined by applicable Building Code does not exceed the design pressure values obtained by calculations in compliance with RAS 127 using the values listed in the installation section herein. The attachment calculations shall be done as a moment based system.

2. PRODUCT DESCRIPTION

<u>Manufactured by</u> <u>Applicant</u>	<u>Dimensions</u>	<u>Test</u> <u>Specifications</u>	<u>Product</u> <u>Description</u>
España Concrete Roof Tile	L = 17" W = 12 ³ / ₈ " ½" thick	TAS 112	High profile, interlocking, one-piece, 'S' shaped, high-pressure extruded concrete roof tile equipped with two nail holes. For direct deck or battened nail-on, mortar set or adhesive set applications.
Trim Pieces	l = varies w = varies varying thickness	TAS 112	Accessory trim, concrete roof pieces for use at hips, rakes, ridges and valley terminations. Manufactured for each tile profile.

2.1 PRODUCT DESCRIPTION

1. Lake Wales, FL.

2.2 SUBMITTED EVIDENCE:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
Redland Technologies	7161-03	Static Uplift Testing	Dec. 1991
	Appendix III	PA 102 & PA 102(A)	
Redland Technologies	7161-03	Wind Tunnel Testing	Dec. 1991
	Appendix II	PA 108(Nail-On)	
Redland Technologies	P0402	Withdrawal Resistance Testing of screw vs. smooth shank nails	Sept. 1993
Redland Technologies	Letter Dated Aug. 1, 1994	Wind Tunnel Testing	Aug. 1994
		PA 108 (Nail-On)	
Redland Technologies	P0631-01	Wind Tunnel Testing	July 1994
		PA 108 (Mortar Set)	
The Center for Applied Engineering, Inc.	25-7688-3	Static Uplift Testing	June 1996
	25-7688-10	PA 101 (Adhesive Set)	July 1996
		PA 101 (Mortar Set)	



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2.2 SUBMITTED EVIDENCE:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
The Center for Applied Engineering, Inc.	25-7688-5	Static Uplift Testing PA 102 (3" Headlap, Nails, Direct Deck, New Construction)□	June 1996
Celotex Corporation	520111-3	Static Uplift Testing	Dec. 1998
Testing Services	520191-2-1	PA 101	March 1999
Walker Engineering, Inc.	Calculations	Aerodynamic Multiplier	October 2007
Walker Engineering, Inc.	Calculations	Restoring Moment	August 2007
Walker Engineering, Inc.	Calculations	Two Patty Adhesive Set System	April 1999
Walker Engineering, Inc.	Evaluation Calculations	25-7183	March 1995
Walker Engineering, Inc.	Evaluation Calculations	25-7094	February 1996
Walker Engineering, Inc.	Evaluation Calculations	25-7496	April 1996
Walker Engineering, Inc.	Evaluation Calculations	25-7584	December 1996
		25-7804b-8	
		25-7804-4 & 5	
		25-7848-6	
Nutting Engineering	TAS-112	13343.1-134	June 2007

3. LIMITATIONS

- 3.1 Fire classification is not part of this acceptance.
- 3.2 For mortar or adhesive set tile applications, a static field uplift test shall be performed in accordance with TAS 106.
- 3.3 Applicant shall retain the services of a Miami-Dade County Certified Laboratory to perform quarterly test in accordance with TAS 112, appendix 'A'. Such testing shall be submitted to the Building Code Compliance Office for review.
- 3.4 Minimum underlayment shall be in compliance with the applicable Roofing Applications Standards listed section 4.1 herein.
- 3.5 30/90 hot mopped underlayment applications may be installed perpendicular to the roof slope unless stated otherwise by the underlayment material manufacturers published literature.
- 3.6 This acceptance is for wood deck applications. Minimum deck requirements shall be in compliance with applicable building code.



4. INSTALLATION

4.1 España Concrete Roof Tile and its components shall be installed in strict compliance with Roofing Application Standard RAS 118, RAS 119, and RAS 120.

4.2 Data For Attachment Calculations

Table 1: Average Weight (W) and Dimensions (l x w)

Tile Profile	Weight-W (lbf)	Length-l (ft)	Width-w (ft)
España Concrete Roof Tile	10.4	1.42	1.04

Table 2: Aerodynamic Multipliers - λ (ft³)

Tile Profile	λ (ft ³) Batten Application	λ (ft ³) Direct Deck Application
España Concrete Roof Tile	0.274	0.297

Table 3: Restoring Moments due to Gravity - M_g (ft-lbf)

Tile Profile	2":12"		3":12"		4":12"		5":12"		6":12"		7":12" or greater	
	Battens	Direct Deck	Battens	Direct Deck	Battens	Direct Deck	Battens	Direct Deck	Battens	Direct Deck	Battens	Direct Deck
España Concrete Roof Tile	5.93	6.50	5.87	6.44	5.79	6.35	5.67	6.22	5.33	6.07	5.38	5.90

**Table 4: Attachment Resistance Expressed as a Moment - M_r (ft-lbf)
for Nail-On Systems**

Tile Profile	Fastener Type	Direct Deck (min 15/32" plywood)	Direct Deck (min. 19/32" plywood)	Battens
España Concrete Roof Tile	2-10d Ring Shank Nails	28.6	41.2	19.4
	1-10d Smooth or Screw Shank Nail	5.1	6.8	2.8
	2-10d Smooth or Screw Shank Nails	6.9	9.2	7.3
	1 .#8 Screw	20.7	20.7	18.1
	2 .#8 Screws	43.2	43.2	29.8
	1-10d Smooth or Screw Shank Nail (Field Clip)	23.1	23.1	19.0
	1-10d Smooth or Screw Shank Nail (Eave Clip)	29.3	29.3	24.0
	2-10d Smooth or Screw Shank Nails (Field Clip)	27.6	27.6	38.6
	2-10d Smooth or Screw Shank Nails (Eave Clip)	38.1	38.1	41.8



Table 6: Attachment Resistance Expressed as a Moment M_r (ft-lbf) for Two Patty Adhesive Set Systems		
Tile Profile	Tile Application	Minimum Attachment Resistance
España Concrete Roof Tile	Adhesive ¹	29.3 ²
1 See manufactures component approval for installation requirements.		
2 Flexible Products Company TileBond Average weight per patty 10.7 grams. 3M™ 2-Component Foam Roof Tile Adhesive AH-160 Average weight per patty 8 grams.		

Table 7: Attachment Resistance Expressed as a Moment - M_r (ft-lbf) for Single Patty Adhesive Set Systems		
Tile Profile	Tile Application	Minimum Attachment Resistance
España Concrete Roof Tile	3M™ 2-Component Foam Roof Tile Adhesive AH-160	66.5 ³
	3M™ 2-Component Foam Roof Tile Adhesive AH-160	38.7 ⁴
3 Large paddy placement of 63grams of 3M™ 2-Component Foam Roof Tile Adhesive AH-160.		
4 Medium paddy placement of 24grams of 3M™ 2-Component Foam Roof Tile Adhesive AH-160.		

Table 8: Attachment Resistance Expressed as a Moment - M_r (ft-lbf) for Mortar Set Systems		
Tile Profile	Tile Application	Attachment Resistance
España Concrete Roof Tile	Mortar Set ⁵	24.5
5 Tile-Tite Roof Tile Mortar.		

5. LABELING

All tiles shall bear the imprint or identifiable marking of the manufacturer's name or logo (See Detail Below), or following statement: "Miami-Dade County Product Control Approved".



BORAL ROOFING LLC ESPAÑA CONCRETE ROOF TILE (LAKE WALES, FL.)
(LOCATED ON UNDERSIDE OF TILE)



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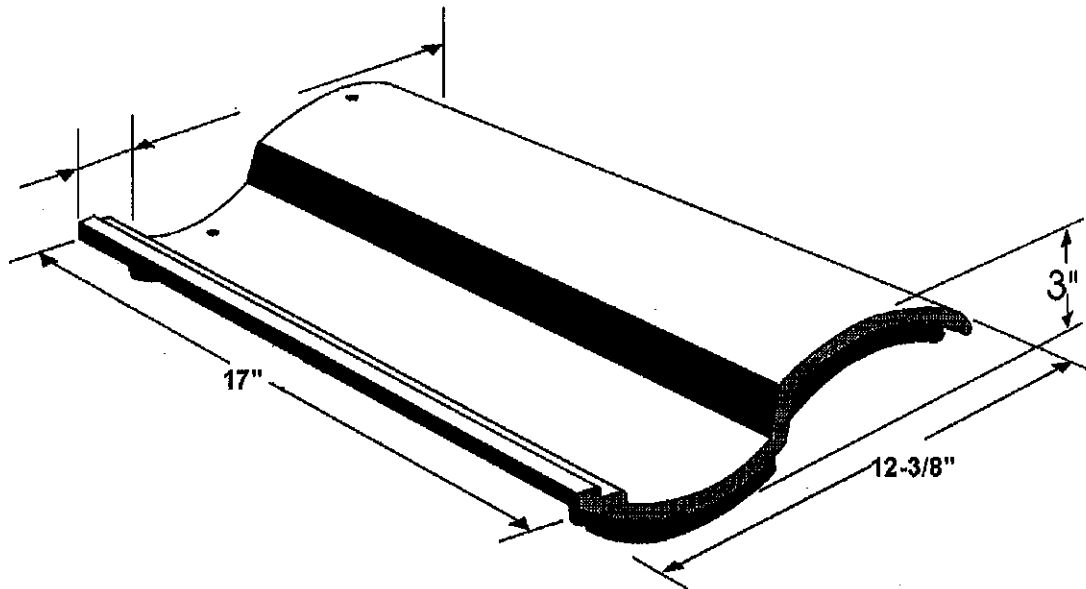
6. BUILDING PERMIT REQUIREMENTS

6.1 Application for building permit shall be accompanied by copies of the following:

6.1.1 This Notice of Acceptance.

6.1.2 Any other documents required by the Building Official or applicable building code in order to properly evaluate the installation of this system.

PROFILE DRAWINGS



ESPAÑA CONCRETE ROOF TILE (LAKE WALES, FL.)

END OF THIS ACCEPTANCE



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